Changes in LANL Radiation Protection Program Effective May 26, 2000 (to be fully implemented by this date)

1.0 General Provisions

1.1 Requirement: Exclusion. Except as discussed in paragraph (c) of this section, the requirements in this part do not apply to:
(3) Activities conducted under the Nuclear Explosives and Weapons Surety Program relating to the prevention of accidental or unauthorized nuclear detonations; [835.1(b)(3)]
(4) Radioactive material transportation as defined in this part; [835.1(b)(4)]
(5) DOE activities conducted outside the United States on territory under the jurisdiction of a foreign government to the extent governed by occupational radiation protection requirements agreed to between the United States and the cognizant government; or [835.1(b)(5)
(6) Background radiation, radiation doses received as a patient for the purposes of medical diagnosis or therapy, or radiation doses received from participation as a subject in medical research programs. [835.1(b)(6)]

Required Actions: *None. Provided for reference for requirement below*

1.2 Requirement: Occupational doses received as a result of excluded activities and radioactive material transportation, as listed in paragraphs (b)(1) through (b)(5) of this section, shall be considered when determining compliance with the occupational dose limits at §§835.202 and 835.207, and with the limits for the embryo/fetus at §835.206. Occupational doses resulting from authorized emergency exposures and planned special exposures shall not be considered when determining compliance with the dose limits at §§835.202 and 835.207. [835.1(c)]

Required Actions: *The ESH-12 Radiation Information Management team shall include occupational dose received from excluded activities and radioactive material transportation in dose records used to determine compliance with the occupational dose limits at §§835.202 and 835.207. However, they shall not include occupational doses from authorized emergency exposures and planned special exposures in dose records used to determine compliance with the occupational dose limits at §§835.202 and 835.207.*

1.3 Requirement: For those activities that are required by §§835.102, 835.901(e), 835.1202 (a), and 835.1202(b), the time interval to conduct these activities may be extended by a period not to exceed 30 days to accommodate scheduling needs. [835.3(e)]

Required Actions: *AA-2 may elect to extend by a period of 30 days, the internal audit of the LANL radiation protection program that is to be conducted every 36 months. ESH-13 may elect to extend by a period of 30 days the 24 month interval required to requalify individuals under the Radiation Worker I and II training programs. The ESH-12 source control office may elect to extend the 6 month interval for accountable sealed radioactive source inventory and leak-testing by a period of 30 days.*

2.0 Management and Administrative Requirements

2.1 Requirement: Individuals responsible for developing and implementing measures necessary for ensuring compliance with the requirements of this part shall have the appropriate education, training, and skills to discharge these responsibilities. [835.103]

Required Actions: *These individuals include technical and management personnel within the radiological protection organization, independent assessors, and the safety- and environmentally-responsible line-management chain responsible for radiological activities. Documentation of the appropriate education, training, and skills necessary to discharge the responsibilities of 10 CFR 835 shall be maintained by each organization. This documentation would include training rosters*

(e.g., access to EDS), qualifications statements, school transcripts, and training certificates, as applicable.

2.2 Requirement: Written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazards created by the activity and consistent with the education, training, and skills of the individuals exposed to those hazards. [835.104]

Required Actions: *The safety- and environmentally responsible line-management chain responsible for radiological activities and the programmatic elements of the radiation protection program (ESH-1, ESH-4, ESH-12, and ESH-13) shall ensure that this requirement has been met by properly implementing the safe work practices documentation requirements found in LIR 300-00-02.1, Documentation of Safe Work Practices. Otherwise, the programmatic elements of the radiation protection program (ESH-1, ESH-4, ESH-12, and ESH-13) shall ensure that this requirement has been met by reviewing 10 CFR 835-driven activities within their organizations and verifying that those activities have been proceduralized and implemented commensurate with the radiological hazards created by the activity and consistent with the education, training, and skills of the individuals performing these activities.*

2.3 Requirement: All occupational doses received during the current year, except doses resulting from planned special exposures conducted in compliance with §835.204 and emergency exposures authorized in accordance with §835.1302, shall be included when demonstrating compliance with §§835.202(a) and 835.207. [835.202(b)]

Required Actions: *All occupational dose received during the current calendar year by an individual monitored by LANL or any other site (DOE or otherwise) shall be included in the individual's dose record used for determining compliance with the occupational dose limits of §§835.202(a) and 835.207, except for doses resulting from planned special exposures conducted in compliance with §835.204 and emergency exposures authorized in accordance with §835.1302. This requirement shall be implemented by the ESH-12 Radiation Information Management team. All individuals who receive occupational exposure offsite shall ensure that the ESH-12 Radiation Information Management team receives the offsite dose record by providing proper home or work address information to the offsite entity and forwarding offsite dose records to the team if these records are received at home.*

2.4 Requirement: An individual shall not receive a planned special exposure that, in addition to the doses determined in §835.204(b), would result in a dose exceeding the following: In a year, the numerical values of the dose limits established at §835.202(a); and over the individual's lifetime, five times the numerical values of the dose limits established at §835.202(a). [835.204(c)(1) and 835.204(c)(2)]

Required Actions: *The safety- and environmentally responsible line-management chain shall implement this requirement for all annual radiological worker dose limits established at* LPR 402-714.0, Occupational Dose Limits*. Currently, LANL only implements this requirement for the 5 rem TEDE annual limit of 835.202(a)(1).*

2.5 Requirement: Prior to a planned special exposure, written consent shall be obtained from each individual involved. Each such written consent shall include the purpose of the planned operations and procedures to be used. [835.204(d)(1)]

Required Actions: *Organizations executing a planned special exposure shall implement the requirement as stated above.*

2.6 Requirement: Prior to a planned special exposure, written consent shall be obtained from each individual involved. Each such written consent shall include: The estimated doses and associated potential risks and specific radiological conditions and other hazards which might be involved in performing the task. [835.204(d)(2)]

Required Action: *Organizations executing a planned special exposure shall implement the requirement as stated above, to include other hazards which might be involved in performing the task.*

2.7 Requirement: The dose equivalent limits for minors occupationally exposed to radiation and/or radioactive materials at a DOE activity are 0.1 rem (0.001 sievert) total effective dose equivalent in a year and 10% of the occupational dose limits specified at §835.202(a)(3) and (a)(4). [835.207]

Required Actions: *The safety- and environmentally responsible line-management chain responsible for the occupationally exposed onsite minor (click here for definition of minor) shall ensure that the annual dose to the minor does not exceed 0.1 rem (0.001 sievert) total effective dose equivalent and 10% of the lens of the eye dose and skin/extremity dose for radiological workers specified in* LPR 402-714.0, Occupational Dose Limits.

3.0 Monitoring of Individuals and Areas

3.1 Requirement: For the purpose of monitoring individual exposures to external radiation, personnel dosimeters shall be provided to and used by occupationally exposed minors likely to receive a dose in excess of 50% of the applicable limits at §835.207 in a year from external sources.

Required Actions: *The safety- and environmentally responsible line-management chain responsible for occupationally exposed onsite minors (click here for definition of minor) shall ensure that personnel dosimeters are provided to and used by occupationally exposed minors likely to receive a dose in excess of 50% of the applicable limits at §835.207 in a year from external sources.*

3.2 Requirement: Monitoring of airborne radioactivity shall be performed as necessary to characterize the airborne radioactivity hazard where respiratory protective devices for protection against airborne radionuclides have been prescribed. [835.403(a)(2)]

Required Actions: *The safety- and environmentally responsible line-management chain responsible for the radiological activity requiring the use of respiratory protective devices shall ensure that airborne radioactivity monitoring is being performed as necessary during the activity. ESH-1 shall perform the required monitoring and prescribe the appropriate respiratory protective devices upon request from the safety- and environmentally responsible line-management chain.*

3.3 Requirement: Receipt of packages containing radioactive material. [835.405]

(a) If packages containing quantities of radioactive material in excess of a Type A quantity (as defined at 10 CFR 71.4) are expected to be received from radioactive material transportation, arrangements shall be made to either:
(1) Take possession of the package when the carrier offers it for delivery; or
(2) Receive notification as soon as practicable after arrival of the package at the carrier's terminal and to take possession of the package expeditiously after receiving such notification.

(b) Upon receipt from radioactive material transportation, external surfaces of packages known to contain radioactive material shall be monitored if the package:
(1) Is labeled with a Radioactive White I, Yellow II, or Yellow III label (as specified at 49 CFR 172.403 and 172.436-440); or
(2) Has been transported as low specific activity material (as defined at 10 CFR 71.4) on an exclusive use vehicle (as defined at 10 CFR 71.4); or
(3) Has evidence of degradation, such as packages that are crushed, wet, or damaged.

(c) The monitoring required by paragraph (b) of this section shall include:
(1) Measurements of removable contamination levels, unless the package contains only special form (as defined at 10 CFR 71.4) or gaseous radioactive material; and

(2) Measurements of the radiation levels, unless the package contains less than a Type A quantity (as defined at 10 CFR 71.4) of radioactive material.

(d) The monitoring required by paragraph (b) of this section shall be completed as soon as practicable following receipt of the package, but not later than 8 hours after the beginning of the working day following receipt of the package.

Required Actions: *The monitoring, as described above, shall be performed when the radioactive material package is received at the SM-30 warehouse by the BUS-4 Packaging and Transportation team or ESH-1 at the request of BUS-4, and again, when it is received at the final destination by ESH-1 at the request of the safety- and environmentally responsible line-management chain responsible for bringing the radioactive material package onsite.*

4.0 Entry Control Program

4.1 Requirement: Written authorizations shall be required to control entry into and perform work within radiological areas. [835.501(d)]

Required Actions: *Authorization of workers to enter radiological areas shall either be handled through the approval of a general or job-specific radiological work permit (RWP), a hazard control plan (HCP) that authorizes the worker(s) by name, or other equivalent document. Authorization of workers to perform work in radiological areas must be handled through a general or job-specific RWP, or an HCP that authorizes the worker(s) by name in accordance with section 7.3.4 of LIR 300-00-01.0, Safe Work Practices. The level of detail included in such authorizations shall be dependent upon facility hazards and the nature of the work force.*

4.2 Requirement: The following measures shall be implemented for each entry into a high radiation area: The area shall be monitored as necessary during access to determine the exposure rates to which the individuals are exposed. [835.502(a)(1)]

Required Actions: *The safety- and environmentally responsible line-management chain responsible for the high radiation area to be accessed (or the workers accessing the area) shall notify ESH-1 prior to the entry. ESH-1 shall perform the monitoring of the area at the request of the safety-and environmentally responsible line-management chain.*

4.3 Requirement: In addition to the above (physical controls for High Radiation Area) requirements, additional measures shall be implemented to ensure individuals are not able to gain unauthorized or inadvertent access to very high radiation areas.

Required Actions: *The safety- and environmentally responsible line-management chain responsible for the very high radiation area shall ensure that additional measures (in addition to those physical controls for high radiation areas required in 835.502(b)) shall be implemented to ensure individuals are not able to gain unauthorized or inadvertent access to very high radiation areas.*

5.0 Posting and Labeling

5.1 Requirement: Each access point to radiological areas and radioactive material areas (as defined in §835.2) shall be posted with conspicuous signs bearing the wording provided in this section. [835.601(b)]

Required Actions: *The safety- and environmentally responsible line-management chain responsible for the radiological area(s) and/or radioactive material area(s) shall ensure that each access point for the area is posted with a conspicuous sign bearing the appropriate wording as specified in Subpart G of the rule. ESH-1 shall provide guidance to the safety- and*

environmentally responsible line-management chain with regard to the implementation of this requirement upon request.

5.2 Requirement: Contamination Area. The words "Caution, Contamination Area" shall be posted at each contamination area. [835.603(e)]

Required Actions: *The safety-and environmentally responsible line-management chain with responsibility for the contamination area(s) shall ensure that those areas meeting the definition of a contamination area (see definition above) are posted with a sign containing the words "Caution, Contamination Area." ESH-1 shall provide guidance to the safety- and environmentally responsible line-management chain with regard to the implementation of this requirement upon request.*

5.3 Requirement: High Contamination Area. The words "Caution, High Contamination Area" or "Danger, High Contamination Area" shall be posted at each high contamination area. [835.603(f)]

Required Actions: *The safety- and environmentally responsible line-management chain with responsibility for the high contamination area(s) shall ensure that those areas meeting the definition of a high contamination area (see definition above) are posted with a sign containing the words "Caution, Contamination Area" or "Danger, High Contamination Area." ESH-1 shall provide guidance to the safety- and environmentally responsible line-management chain with regard to the implementation of this requirement upon request.*

5.4 Requirement: Radioactive Material Area. The words "Caution, Radioactive Material(s)" shall be posted at each radioactive material area (see definition above). [835.603(g)]

Required Actions: *The safety- and environmentally responsible line-management chain with responsibility for the radioactive material area(s) shall ensure that those areas meeting the definition of a radioactive material area (see definition above) are posted with a sign containing the words "Caution, Radioactive Material(s)." ESH-1 shall provide guidance to the safety- and environmentally responsible line-management chain with regard to the implementation of this requirement upon request.*

5.5 Requirement: Areas may be excepted from the radioactive material area posting requirements of §835.603(g) when: [835.604(b)]

(1) Posted in accordance with §§835.603(a) through (f); or

(2) Each item or container of radioactive material is labeled in accordance with this subpart such that individuals entering the area are made aware of the hazard; or

(3) The radioactive material of concern consists solely of structures or installed components which have been activated (i.e., such as by being exposed to neutron radiation or particles produced by an accelerator).

Required Actions: *The safety- and environmentally responsible line-management chain with responsibility for the radioactive material area(s) may elect not to post the area as a radioactive material area if the above conditions have been met. ESH-1 shall provide guidance to the safety- and environmentally responsible line-management chain with regard to the implementation of this requirement upon request.*

5.6 Requirement: Areas containing only packages received from radioactive material transportation labeled and in non-degraded condition need not be posted in accordance with §835.603 until the packages are monitored in accordance with §835.405. [835.604(c)]

Required Actions: *The safety- and environmentally responsible line-management chain with responsibility for areas where only labeled and non-degraded packages are received from radioactive material transportation may elect not to post the area in accordance with §835.603 until the packages are monitored in accordance with §835.405. ESH-1 shall provide guidance to*

the safety- and environmentally responsible line-management chain with regard to the implementation of this requirement upon request.

5.7 Requirement: Items and containers may be excepted from the radioactive material labeling requirements of §835.605 when: [835.606(a)]

(1) Used, handled, or stored in areas posted and controlled in accordance with this subpart and sufficient information is provided to permit individuals to take precautions to avoid or control exposures; or
(2) The quantity of radioactive material is less than one tenth of the values specified in appendix E of the rule; or
(3) Packaged, labeled, and marked in accordance with the regulations of the Department of Transportation or DOE Orders governing radioactive material transportation; or
(4) Inaccessible, or accessible only to individuals authorized to handle or use them, or work in the vicinity; or
(5) Installed in manufacturing, process, or other equipment, such as reactor components, piping, and tanks; or
(6) The radioactive material consists solely of nuclear weapons or their components.

Note: LANL is already in compliance with items (4) through (6) above, however, these items are listed here for reference.

Required Actions: *The safety- and environmentally responsible line- management chain with responsibility for the items and containers may elect not to label the items and containers as radioactive material if any of the above conditions is met. If the radioactive item or container of radioactive material is not labeled in accordance with the requirement above, the radioactive item or container of radioactive material shall be controlled so as to prevent the inadvertent exposure of personnel and contamination of areas and non-radioactive items. ESH-1 shall provide guidance to the safety- and environmentally responsible line-management chain with regard to the implementation of this requirement upon request.* ***Guidance Note:*** *It is recommended that radioactive items and containers of radioactive material (measurable over background using ordinary means) be labeled as such even if the quantity of radioactive material is less than one tenth of the values specified in appendix E (see attachment to this NOTICE) of the rule. This is to ensure that information regarding the fact that the material is radioactive is not lost.*

5.8 Requirement: Radioactive material labels applied to sealed radioactive sources may be excepted from the color specifications of § 835.601(a). [835.606(b)]

Required Actions: *The ESH-12 source control office may elect to chose colors for radioactive sealed source labels different than the color specifications of § 835.601(a).*

6.0 Records

6.1 Requirement: The results of individual external and internal dose monitoring that is performed, but not required by §835.402, shall be recorded. Recording of non-uniform shallow dose equivalent to the skin is not required if the dose is less than 2 percent of the limit specified for the skin at §835.202(a)(4). [835.702(b)]

Required Actions: *The ESH-12 Radiation Information Team shall include in the individual's dose record the results of individual external and internal dose monitoring that is performed, but not required by §835.402. The team is not required to include in the record the non-uniform shallow dose equivalent to the skin if the dose is less than 2 percent of the limit specified for the skin at §835.202(a)(4).*

6.2 Requirement: The records required by this section shall include the following quantities for the summation of the external and internal dose: Cumulative total effective dose equivalent. [835.702(c)(5)(iii)]

Required Actions: *The ESH-12 Radiation Information Team shall include in the individual's dose record the cumulative total effective dose as defined in this NOTICE. This definition includes all occupational dose received by the individual at LANL, at other sites, and from previous employers.*

6.3 Requirement: Documentation of all occupational doses received during the current year, except for doses resulting from planned special exposures conducted in compliance with §835.204 and emergency exposures authorized in accordance with §835.1302(d), shall be obtained to demonstrate compliance with §835.202(a). [835.702(d).01]

Required Actions: *The ESH-12 Radiation Information Team shall obtain documentation of all occupational doses received during the current year, except for doses resulting from planned special exposures conducted in compliance with §835.204 and emergency exposures authorized in accordance with §835.1302(d), and include these doses in the individual's dose record in order to determine and demonstrate compliance with §835.202(a).*

6.4 Requirement: The following information shall be documented and maintained: Results of maintenance and calibration performed on instruments and equipment as required by §835.401(b). [835.703(d)]

Required Actions: *ESH-4 personnel who perform maintenance and calibration on radiation protection instruments and equipment as required by §835.401(b) shall document and maintain the results of the maintenance and calibration of the instruments and equipment. This would not include battery, cable, and some types of window (mylar windows on air proportional probes) replacements performed by ESH-1 in the field.*

6.5 Requirement: Written declarations of pregnancy, including the estimated date of conception, and revocations of declarations of pregnancy shall be maintained. [835.704(d)]

Required Actions: *ESH-12 shall maintain written declarations of pregnancy, including the estimated date of conception, and revocations of declarations of pregnancy.*

6.6 Requirement: Changes in equipment, techniques, and procedures used for monitoring shall be documented. [835.704(e)]

Required Actions: *ESH-1, ESH-4, and ESH-12 shall maintain as records previous versions of those documents related to equipment, techniques, and procedures used for monitoring areas and individuals in facilities as well as outside of facilities, including routine monitoring instructions (RMIs).*

6.7 Requirement: Records shall be maintained as necessary to demonstrate compliance with the requirements of §§835.1201 and 835.1202 for sealed radioactive source control, inventory, and source leak tests. [835.704(f)]

Required Actions: *The new sealed radioactive source control requirements of the amended 10 CFR 835 rule will be issued in a revision to LIR 402-716-01 to be published by 3/27/00. Questions should be referred to David Lee, ESH-12, 7-8085.*

7.0 Radiation Safety Training

7.1 Requirement: When an escort is used in lieu of training in accordance with paragraph (a) or (b) of this section, the escort shall: [835.901(d)]
(1) Have completed radiation safety training, examinations, and performance demonstrations required for entry to the area and performance of the work; and
(2) Ensure that all escorted individuals comply with the documented radiation protection program.

Required Actions: *The safety- and environmentally responsible line-management chain and escort responsible for the individual without the prerequisite training shall ensure that the requirements stated above have been implemented for each escorted individual.*

8.0 Sealed Radioactive Source Control

The new sealed radioactive source control requirements of the amended 10 CFR 835 rule will be issued in a revision to LIR 402-716-01 to be published by 3/27/00. Questions should be referred to David Lee, ESH-12, 7-8085.

9.0 Emergency Exposure Situations

9.1 Requirement: A general employee whose occupational exposure has exceeded the numerical value of any of the limits specified in §835.202 as a result of an authorized emergency exposure may be permitted to return to work in radiological areas during the current year providing that all of the following conditions are met: [835.1301]

Approval is first obtained from the contractor management and the Head of the responsible DOE field organization

The individual receives counseling from radiological protection and medical personnel regarding the consequences of receiving additional occupational exposure during the year; and

The affected employee agrees to return to radiological work.

Required Actions: *The safety- and environmentally responsible line-management chain responsible for the individual whose occupational exposure has exceeded the numerical value of any of the limits specified in §835.202 as a result of an authorized emergency exposure shall ensure that the requirements stated above have been met. That these requirements have been met shall be documented. Approval shall be obtained from the Laboratory Director and the manager for DOE/LAAO.*

9.2 Requirement: No individual shall be required to perform a rescue action that might involve substantial personal risk. [835.1302(c)]

Required Actions: *The on-scene incident commander, with advice from available health and safety professionals, shall determine "substantial personal risk" from all hazards present, prior to requesting individuals to perform rescue actions. No individual shall be required to perform a rescue action that might involve substantial personal risk (generally considered to be >25 rem acute dose to the whole body for the ionizing radiation hazard). Only volunteers will be expected to perform a rescue action that might involve substantial personal risk.*

9.3 Requirement: Each individual authorized to perform emergency actions likely to result in occupational doses exceeding the values of the limits provided at §835.202(a) shall be trained in accordance with §835.901(b) and briefed beforehand of the known or anticipated hazards to which the individual will be subjected. [835.1302(d)]

Required Actions: *The on-scene incident commander shall ensure that for each individual authorized to perform emergency actions likely to result in occupational doses exceeding the values of the limits provided at §835.202(a), that individual shall have successfully completed Radiological Worker I or II training, or the Emergency Responder Radiological Training (course number 15664) and the Emergency Responder Radiological Training Drill (course number 17793) provided by ESH-13.*

In addition, the on-scene incident commander or his designee shall brief beforehand each individual who is about to perform these emergency actions of the known or anticipated hazards to which the individual will be subjected.

10.0 Appendices

10.1 Requirement: The air immersion DACs were calculated for a continuous nonshielded exposure via immersion in a semi-infinite atmospheric cloud. The DACs listed in this appendix MAY be modified to allow for submersion in a cloud of finite dimensions. [Appendix C, footnote b.)

Required Actions: *ESH-1 team leaders may elect to modify the air immersion DACs listed in the rule to allow for submersion in a cloud of finite dimensions if such a condition exists (e.g., within an enclosed structure).*

10.2 Requirement: When removable contamination on objects of surface area less than 100 cm^2 is determined, the activity per unit area shall be based on the actual area and the entire surface shall be wiped. [Appendix D, footnote 4]

Required Actions: *When ESH-1 or other authorized individuals perform removable contamination surveys on objects of surface area less than 100 cm^2, the above requirement shall be met.*